

Chapter 1

1. Beginning with the Biosphere, name the 11 levels of biological organization (2pts).
2. Explain why cells are considered the basic units of life (1pt.)
3. Name and describe the characteristics of the two types of cells (2 pts.)

Chapter 2

4. Define:
 1. Matter
 2. Element
 3. Trace element
5. Define: Compound
6. Complete the table →
7. What is the difference between a polar covalent bond and a non-polar covalent bond?
8. What is an Ion?
9. Place the three bonds discussed in class in order of their strengths (strongest to weakest).
10. Define Cohesion (1pt)
11. Define Surface Tension (1 pt)
12. What is a Buffer?
13. What is an Acid?
14. How much more acidic is pH 3 when compared to pH 5?

1. Atomic #	2. 9
3. Name	4. Fluorine
5. # Protons	6.
7. # Neutrons	8. 10
9. # Electrons	10.
11. Atomic Mass	12.
13. # e ⁻ in outermost shell	14.

Chapter 3 Molecules:

15. How many molecules of water is needed to completely hydrolyze a polymer that is 756 monomers long? (.5 pts)
16. Define: (2 pts)
 - a. Macromolecule
 - b. Monomer
 - c. Polymer
 - d. Organic Compound
17. List The four classes of Macromolecules (2pts)
18. 4. Dehydration reactions _____. They do so by _____. (Module 3.3) (.5 pts.)
link monomers to form a polymer ... adding a water molecule.
19. A polysaccharide called starch consists entirely of glucose molecules. During early stages of starch digestion, breakdown of starch would result in a monosaccharide of _____.
20. A molecule with the formula $C_6H_{12}O_6$ is _____.
21. What is a disaccharide?
22. What polysaccharide is the most abundant organic compound on earth?
23. Which of the following would bind to a sweet receptor most tightly?
A. grapes B.Milk C. Table sugar D.malted milk shake

Chapter 4 A tour of the cell

24. Name the two principles that make up the cell theory (1pt).
25. To survive, all cells must exhibit these traits(1.5 pts)?
26. What is the difference between a Prokaryotic cell and a Eukaryotic cell (1pt)?
27. What kind of microscope do we use at Signature School (.5pt)?
28. Why is more advantageous for a cell to have a greater surface to volume ratio (1pt)?
29. Name the four components of the Endo-membrane System.(2pts)
30. List 2 of the three functions of the smooth-ER (1 pt)
31. What is the route that a protein takes once mRNA has left the nucleus?(2pts)

Chapter 5

32. What is the difference between an Endergonic reaction and an Exergonic reaction?(1pt.)
33. Which reaction above would occur spontaneously.(.5pt)
34. Describe three ways that membranes help organize chemical activity. (1.5pts)
35. What is a phospholipid, and explain why it forms a lipid bilayer.(1pt.)
36. What is 'signal transduction'?(1pt)
37. Define Osmosis (1pt)
38. Define Diffusion (1pt)
39. What is the difference between Passive Transport and Facilitated Transport? (1pt)
40. True or False: Facilitated Diffusion requires the input of energy to occur?
41. What happens to a blood cell when you put it into a: (1.5pt)
 - Isotonic Solution
 - Hypertonic solution
 - Hypotonic solution

Chapter 6 & 7

42. In what plant cell does photosynthesis occur? (.5 pt)
43. In what cell organelle does cellular respiration occur?(.5pt)
44. How are breathing and cellular respiration linked?(1 pt)
45. What is the role of oxygen in cellular respiration? (1pt.)
46. Only 40% of the energy from glucose is converted to ATP, what happens to the remaining 60%?(1pt.)
47. How does the human body use its daily stores of ATP?
48. What are the three stages in cellular Respiration? (1.5 pts)
49. When the first stage is complete, Glucose is converted to 2 molecules of _____.(.5pt)
50. Where does the first stage of cellular respiration occur? (.5)
51. Where in the cell does the second stage of cellular respiration occur? (.5)
52. Write an overall equation for cellular respiration.(1 pt)
53. The third phase of cellular respiration is driven by the product produced in the second phase. Name these 2 products:(1 pt)

- 54. What are the two types of fermentation? (1 pt)
- 55. T or F Fermentation in muscle tissue occurs in an aerobic environment?(1pt)
- 56. What are the ends products produced in both types of fermentation? (1 pt)
- 57. What is the third phase of cellular respiration and where in the cell does it occur? (1pt)
- 58. Why does Carbon Monoxide poisoning lead to death?(1pt)

Chapter 8

- 59. What are the four steps in Mitosis? (2pt)
- 60. What step in mitosis are the chromosomes lined up at the equator? (.5)
- 61. Name 2 factors effect cell division? (1)
- 62. How do animal cells and plant cells differ in cytokinesis?(1)
- 63. Name 2 functions of mitosis(why do cells divide?).
- 64. Two chromosomes composing a pair are called?
- 65. What is a somatic Cell?
- 66. What is a gamete?
- 67. What is the difference between the terms Chromatid, Chromatin, and Chromosome? (1.5 pts)
- 68. What is binary fission? (.5)
- 69. What is the difference between the terms: cell division and cell cycle? (1 pt)
- 70. When does a chromosome consist of two identical sister chromatids? (.5)
- 71. What are the two major phases in cell division? (1pt)
- 72. What is the name of the process by which the cytoplasm divides? (.5)
- 73. The structure that contains most of an organisms DNA is called?(1pt)
- 74. What are the two ways in which organisms reproduce? (1 pt)
- 75. Prokaryotes reproduce by a type of cell division called _____?(1pt)
- 76. What are the two major phases in cellular reproduction called? (1 pt.)
- 77. The sequence of stages leading from the adults of one generation to the adults of another generation is called? (1pt)

